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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,654	10/09/2003	David Guy Hill	124399-2 (13633US02)	8250

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MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER	
RAMIREZ, JOHN FERNANDO	
ART UNIT	**PAPER NUMBER**
3737	

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	**Application No.** 10/682,654	**Applicant(s)** HILL, DAVID GUY
	Examiner John F. Ramirez	**Art Unit** 3737

*-- The **MAILING DATE** of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 12/28/2005.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

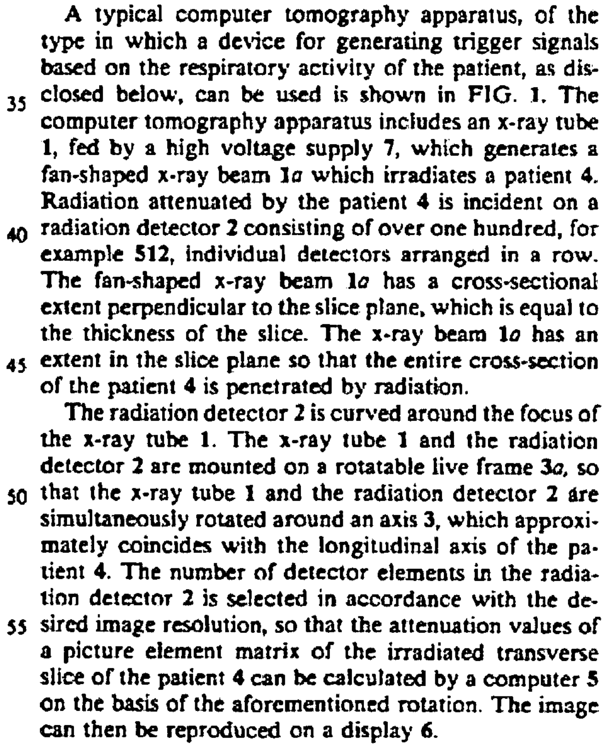
1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on12/28/2005 have been fully considered but they are not persuasive. In relation to claims 1, 11 and 21, applicant alleges that Rienmueller et al. does not teach or suggest the steps of "triggering an image scan of at least a lung cross-section of a patient" or "scanning the lung cross-section" or "irradiating at least a portion of said lung of said patient".

However, the examiner of record respectfully disagrees with applicant's comments. In column 2, lines 32-59, the specification of the Rienmueller et al. patent specifically states:



> A typical computer tomography apparatus, of the type in which a device for generating trigger signals based on the respiratory activity of the patient, as disclosed below, can be used is shown in FIG. 1. The computer tomography apparatus includes an x-ray tube 1, fed by a high voltage supply 7, which generates a fan-shaped x-ray beam 1*a* which irradiates a patient 4. Radiation attenuated by the patient 4 is incident on a radiation detector 2 consisting of over one hundred, for example 512, individual detectors arranged in a row. The fan-shaped x-ray beam 1*a* has a cross-sectional extent perpendicular to the slice plane, which is equal to the thickness of the slice. The x-ray beam 1*a* has an extent in the slice plane so that the entire cross-section of the patient 4 is penetrated by radiation.
>
> The radiation detector 2 is curved around the focus of the x-ray tube 1. The x-ray tube 1 and the radiation detector 2 are mounted on a rotatable live frame 3*a*, so that the x-ray tube 1 and the radiation detector 2 are simultaneously rotated around an axis 3, which approximately coincides with the longitudinal axis of the patient 4. The number of detector elements in the radiation detector 2 is selected in accordance with the desired image resolution, so that the attenuation values of a picture element matrix of the irradiated transverse slice of the patient 4 can be calculated by a computer 5 on the basis of the aforementioned rotation. The image can then be reproduced on a display 6.

In column 3, lines 14-28, the specification of the Rienmueller et al. patent specifically states:

> The vital capacity of the patient 4 can be acquired with the spirometer 8, and stored in the respiratory activity computer 13. The physician or attendant can select a trigger threshold via the respiratory activity computer 13 as a percentage of the vital capacity, or in liters above the residual capacity, at which the acquisition of the measured respiratory value ensues. After the measurement has been enabled by the physician or attendant, the computer 13 compares the measured respiratory volume to the prescribed rated value, and supplies a trigger signal to the computer 5, i.e., to the imaging system, when the rated value is reached. This signal can also be used in the computer 5 to mark respiratory activity within the scan data.

Based on the above evidence, the system disclosed by Rienmueller et al. teaches or suggest the steps of "triggering an image scan of at least a lung cross-section of a patient" or "scanning the lung cross-section" or "irradiating at least a portion of said lung of said patient".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 6, 11, 12, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Rienmueller et al. (US 5,067,494).

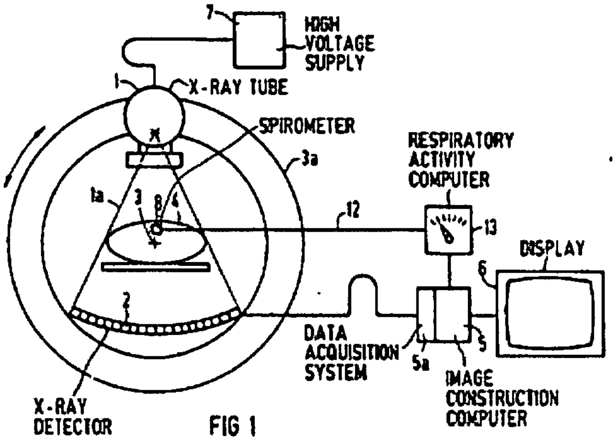


FIG 1

Rienmueller et al. shows in Figure 1 an imaging system for lung imaging comprising: a trigger for triggering an imaging scan of said patient based on at least one of air flow in said lung, volume of said lung, movement of said lung, and density of said lung; an energy source for generating an electron beam to strike a target; a target for producing radiation in response to said electron beam, said radiation irradiating at least a portion of said lung of said patient; a detector for receiving said radiation after said radiation irradiates said lung of said patient during said imaging scan; a data acquisition system for obtaining lung image data from said detector based on said radiation; and a reconstruction system for combining lung function data and said lung image data for use in diagnosis of said patient; an output for at least one of displaying, printing, and storing said lung function data and said lung image data, a spirometer for measuring function of a lung of a patient, said spirometer generating lung function data based on at least one of air flow and volume in said lung, said trigger triggers said imaging scan based on said

In regards to claim 21, the system disclose by Rienmueller et al, is used for detecting lung abnormalities in a patient, obtaining lung function data based on at least one of air flow and air volume in a lung; triggering a scan of the lung based on the lung function data (col. 3, lines 14-26 and claim 1); scanning a cross-section of the lung to obtain a lung image in a single sweep; and examining the lung function data in conjunction with the lung cross-section image to detect abnormalities in the lung (col. 2 lines 30-45 ; col. 5, lines 22-33 and col. 1, lines 30-45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 9, 10, 13, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rienmueller et al. in view of Plewes (US 4,773,087), Rienmueller et al. teaches all the limitations of the claimed subject matter except for mentioning specifically the steps of performing a preview scan of the patient to identify the lung cross-section for imaging, scanning and obtaining lung image data during a sweep of at most 33ms, scanning step obtains lung image data during a sweep of at most 50ms, and a trigger further triggers a preview scan of said patient to identify said portion of said lung for imaging scan.

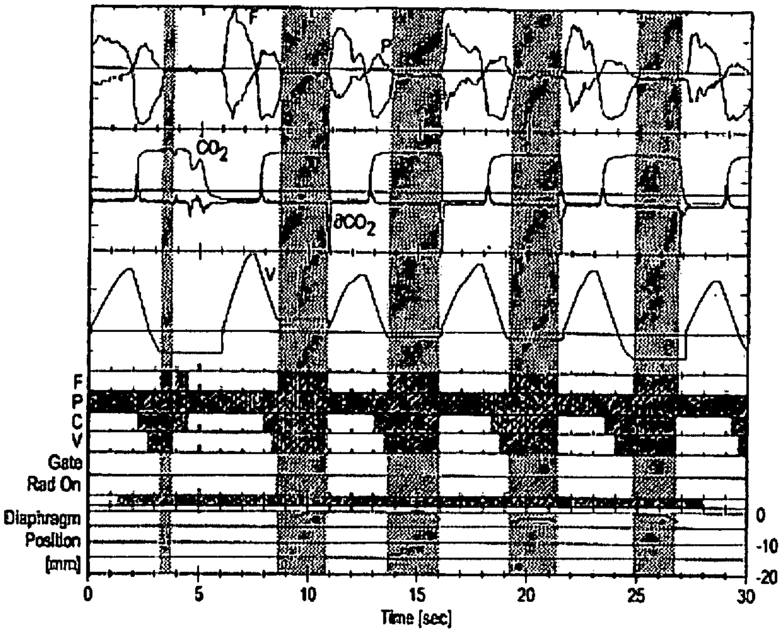
However, the steps of (1) performing a preview scan of the patient to identify the lung cross-section for imaging, (2) scanning and obtaining lung image data during a sweep of at most 33ms, (3) scanning step obtains lung image data during a sweep of at most 50ms, and (4) a trigger further triggers a preview scan of said patient to identify said portion of said lung for imaging scan are considered conventional in the art as evidenced by the teachings of Plewes (US 4,773,087).

The Plewes patent teaches the steps of performing a preview scan of the patient to identify the lung cross-section for imaging, scanning and obtaining lung image data during a sweep of at most 33ms, scanning step obtains lung image data during a sweep of at most 50ms, and a trigger further triggers a preview scan of said patient to identify said portion of said lung for imaging scan (col.10, lines 25-44; col. 6, lines 32-44 and col. 7, lines 34-42).

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Rienmueller et al., with the above discussed enhancements would have been considered obvious because such modifications would have improved image quality by reducing the exposure period and scanning artifacts.

Claims 5, 7, 8, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rienmueller et al. in view of Sontag et al. (US 6,298,260).

FIG. 5



Rienmueller et al. teaches all the limitations of the claimed subject matter except for mentioning specifically the steps of processing said lung function data to generate a plot of lung attenuation versus time or area versus time, scanning step dynamically obtains said lung image data as at least one of air flow and air capacity in the lung are changing, scanning step obtains said lung image data with at least one of air flow and air capacity in the lung held constant, the reconstruction system processes said lung image data to generate a plot of lung attenuation versus time, and the data acquisition system dynamically obtains said lung image data as at least one of air flow and air capacity in the lung are changing.

However the steps of (1) processing said lung function data to generate a plot of lung attenuation versus time or area versus time, (2) scanning step dynamically obtains said lung image data as at least one of air flow and air capacity in the lung are changing, (3) scanning step obtains said lung image data with at least one of air flow and air capacity in the lung held constant, (4) the reconstruction system processes said lung image data to generate a plot of lung attenuation versus time, and (5) the data acquisition system dynamically obtains said lung image data as at least one of air flow and air capacity in the lung are changing are considered conventional in the art as evidenced by the teachings of Sontag et al. (US 6,298,260).

The Sontag et al. patent teaches the steps of processing said lung function data to generate a plot of lung attenuation versus time or area versus time, scanning step dynamically obtains said lung image data as at least one of air flow and air capacity in the lung are changing, scanning step obtains said lung image data with at least one of air flow and air capacity in the lung held constant, the reconstruction system processes said lung image data to generate a plot of lung attenuation versus time, and the data acquisition system dynamically obtains said lung image data as at least one of air flow and air capacity in the lung are changing (Fig. 5, col. 8, lines 53-65 and col. 9, lines 23-46).

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Rienmueller et al., with the above discussed enhancements would have been considered obvious because such modifications would have improved diminished inaccuracies in the assumed spatial location of the portion of the patient being treated or diagnosed which arise from the patient's respiration.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JFR
02/01/06

BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700